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RAW SEQUENCE LISTING   DATE: 11/21/2002
PATENT APPLICATION: **US/09/780,438B**   TIME: 10:08:29

Input Set : **A:\EP.txt**
Output Set: **N:\CRF4\11212002\I780438B.raw**

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    3 <110> APPLICANT: Qi, Xiaoyang
    5 <120> TITLE OF INVENTION: Fusogenic Properties of Saposin C and Related Proteins and
Polypeptides
    6         for Application to Transmembrane Drug Delivery Systems
    8 <130> FILE REFERENCE: 60/181,754
   10 <140> CURRENT APPLICATION NUMBER: US 09/780,438B
   11 <141> CURRENT FILING DATE: 2001-02-09
   13 <150> PRIOR APPLICATION NUMBER: 60/181,754
   14 <151> PRIOR FILING DATE: 2000-02-11
   16 <160> NUMBER OF SEQ ID NOS: 4
   18 <170> SOFTWARE: PatentIn version 3.1
   20 <210> SEQ ID NO: 1
   21 <211> LENGTH: 38
   22 <212> TYPE: PRT
   23 <213> ORGANISM: Homo sapiens
   25 <220> FEATURE:
   26 <221> NAME/KEY: MISC_FEATURE
   27 <222> LOCATION: (1)..(1)
   28 <223> OTHER INFORMATION: Where the amino acid located at 1 is a hydrophobic amino
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   29         including Val, Leu, Ile, Met, Pro, Phe, and Ala
   32 <220> FEATURE:
   33 <221> NAME/KEY: MISC_FEATURE
   34 <222> LOCATION: (2)..(2)
   35 <223> OTHER INFORMATION: Where the amino acid located at 2 is an uncharged polar amino
acid,
   36         including Thr, Ser, Tyr, Gly, Gln, and Asn
   39 <220> FEATURE:
   40 <221> NAME/KEY: MISC_FEATURE
   41 <222> LOCATION: (5)..(5)
   42 <223> OTHER INFORMATION: Where the amino acid located at 5 is a hydrophobic amino
acid,
   43         including Val, Leu, Ile, Met, Pro, Phe, and Ala
   46 <220> FEATURE:
   47 <221> NAME/KEY: MISC_FEATURE
   48 <222> LOCATION: (8)..(10)
   49 <223> OTHER INFORMATION: Where the amino acids located at 8-10 are hydrophobic amino
acids,
   50         including Val, Leu, Ile, Met, Pro, Phe, and Ala
   53 <220> FEATURE:
   54 <221> NAME/KEY: MISC_FEATURE
   55 <222> LOCATION: (13)..(13)
   56 <223> OTHER INFORMATION: Where the amino acid located at 13 is a hydrophobic amino
acid,
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57   including Val, Leu, Ile, Met, Pro, Phe, and Ala
59 <220> FEATURE:
60 <221> NAME/KEY: MISC_FEATURE
61 <222> LOCATION: (14)..(14)
62 <223> OTHER INFORMATION: Where the amino acid located at 14 is an uncharged polar amino acid,

RAW SEQUENCE LISTING   DATE: 11/21/2002
PATENT APPLICATION: **US/09/780,438B**   TIME: 10:08:29

Input Set : **A:\EP.txt**
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    63          including Thr, Ser, Tyr, Gly, Gln, and Asn
    66 <220> FEATURE:
    67 <221> NAME/KEY: MISC_FEATURE
    68 <222> LOCATION: (16)..(17)
    69 <223> OTHER INFORMATION: Where the amino acids located at 16 and 17 are hydrophobic
amino
    70          acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala
    73 <220> FEATURE:
    74 <221> NAME/KEY: MISC_FEATURE
    75 <222> LOCATION: (22)..(22)
    76 <223> OTHER INFORMATION: Where the amino acid located at 22 is an uncharged polar
amino
    77          acid, including Thr, Ser, Tyr, Gly, Gln, and Asn
    80 <220> FEATURE:
    81 <221> NAME/KEY: MISC_FEATURE
    82 <222> LOCATION: (26)..(27)
    83 <223> OTHER INFORMATION: Where the amino acids located at 26 and 27 are hydrophobic
amino
    84          acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala
    87 <220> FEATURE:
    88 <221> NAME/KEY: MISC_FEATURE
    89 <222> LOCATION: (29)..(30)
    90 <223> OTHER INFORMATION: Where the amino acids located at 29 and 30 are hydrophobic
amino
    91          acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala
    94 <220> FEATURE:
    95 <221> NAME/KEY: MISC_FEATURE
    96 <222> LOCATION: (33)..(33)
    97 <223> OTHER INFORMATION: Where the amino acid located at 33 is a hydrophobic amino
acid,
    98          including Val, Leu, Ile, Met, Pro, Phe, and Ala
   101 <220> FEATURE:
   102 <221> NAME/KEY: MISC_FEATURE
   103 <222> LOCATION: (35)..(35)
   104 <223> OTHER INFORMATION: Where the amino acid located at 35 is an uncharged polar
amino
   105          acid, including Thr, Ser, Tyr, Gly, Gln, and Asn
   108 <220> FEATURE:
   109 <221> NAME/KEY: MISC_FEATURE
   110 <222> LOCATION: (37)..(38)
   111 <223> OTHER INFORMATION: Where the amino acids located at 37 and 38 are hydrophobic
amino
   112          acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala
   115 <400> SEQUENCE: 1
W--> 117 Xaa Xaa Cys Glu Xaa Cys Glu Xaa Xaa Xaa Lys Glu Xaa Xaa Lys Xaa
   118 1                   5                  10                  15
W--> 121 Xaa Asp Asn Asn Lys Xaa Glu Lys Glu Xaa Xaa Asp Xaa Xaa Asp Lys
   122                 20                  25                  30
W--> 125 Xaa Cys Xaa Lys Xaa Xaa
   126             35
   129 <210> SEQ ID NO: 2
   130 <211> LENGTH: 39
   131 <212> TYPE: PRT
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132 <213> ORGANISM: Homo sapiens
134 <220> FEATURE:
135 <221> NAME/KEY: MISC_FEATURE
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RAW SEQUENCE LISTING   DATE: 11/21/2002
PATENT APPLICATION: **US/09/780,438B**   TIME: 10:08:29

Input Set : **A:\EP.txt**
Output Set: **N:\CRF4\11212002\I780438B.raw**

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     136 <222> LOCATION: (1)..(2)
     137 <223> OTHER INFORMATION: Where the amino acids located at 1 and 2 are hydrophobic
amino
     138       acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala
     141 <220> FEATURE:
     142 <221> NAME/KEY: MISC_FEATURE
     143 <222> LOCATION: (3)..(3)
     144 <223> OTHER INFORMATION: Where the amino acid located at 3 is an uncharged polar
amino acid,
     145       including Thr, Ser, Tyr, Gly, Gln, and Asn
     148 <220> FEATURE:
     149 <221> NAME/KEY: MISC_FEATURE
     150 <222> LOCATION: (6)..(6)
     151 <223> OTHER INFORMATION: Where the amino acid located at 6 is a hydrophobic amino
acid,
     152       including Val, Leu, Ile, Met, Pro, Phe, and Ala
     155 <220> FEATURE:
     156 <221> NAME/KEY: MISC_FEATURE
     157 <222> LOCATION: (9)..(11)
     158 <223> OTHER INFORMATION: Where the amino acids located at 9-11 are hydrophobic amino
acids,
     159       including Val, Leu, Ile, Met, Pro, Phe, and Ala
     162 <220> FEATURE:
     163 <221> NAME/KEY: MISC_FEATURE
     164 <222> LOCATION: (14)..(14)
     165 <223> OTHER INFORMATION: Where the amino acid located at 14 is a hydrophobic amino
acid,
     166       including Val, Leu, Ile, Met, Pro, Phe, and Ala
     169 <220> FEATURE:
     170 <221> NAME/KEY: MISC_FEATURE
     171 <222> LOCATION: (15)..(15)
     172 <223> OTHER INFORMATION: Where the amino acid located at 15 is an uncharged polar
amino
     173       acid, including Thr, Ser, Tyr, Gly, Gln, and Asn
     176 <220> FEATURE:
     177 <221> NAME/KEY: MISC_FEATURE
     178 <222> LOCATION: (17)..(18)
     179 <223> OTHER INFORMATION: Where the amino acids located at 17 and 18 are hydrophobic
amino
     180       acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala
     183 <220> FEATURE:
     184 <221> NAME/KEY: MISC_FEATURE
     185 <222> LOCATION: (23)..(23)
     186 <223> OTHER INFORMATION: Where the amino acid located 23 is an uncharged polar amino
acid,
     187       including Thr, Ser, Tyr, Gly, Gln, and Asn
     190 <220> FEATURE:
     191 <221> NAME/KEY: MISC_FEATURE
     192 <222> LOCATION: (27)..(28)
     193 <223> OTHER INFORMATION: Where the amino acids located at 27 and 28 are hydrophobic
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     194       acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala
     197 <220> FEATURE:
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198 <221> NAME/KEY: MISC_FEATURE
199 <222> LOCATION: (30)..(31)
200 <223> OTHER INFORMATION: Where the amino acids located at 30 and 31 are hydrophobic
amino
201      acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala
204 <220> FEATURE:
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RAW SEQUENCE LISTING   DATE: 11/21/2002
PATENT APPLICATION: US/09/780,438B   TIME: 10:08:29

Input Set : A:\EP.txt
Output Set: N:\CRF4\11212002\I780438B.raw

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    207 <223> OTHER INFORMATION: Where the amino acid located at 34 is a hydrophobic amino
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    208       including Val, Leu, Ile, Met, Pro, Phe, and Ala
    211 <220> FEATURE:
    212 <221> NAME/KEY: MISC_FEATURE
    213 <222> LOCATION: (36)..(36)
    214 <223> OTHER INFORMATION: Where the amino acid located at 36 is an uncharged polar
amino
    215       acid, including Thr, Ser, Tyr, Gly, Gln, and Asn
    218 <220> FEATURE:
    219 <221> NAME/KEY: MISC_FEATURE
    220 <222> LOCATION: (38)..(39)
    221 <223> OTHER INFORMATION: Where the amino acids located at 38 and 39 are hydrophobic
amino
    222       acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala
    225 <400> SEQUENCE: 2
W--> 227 Xaa Xaa Xaa Cys Glu Xaa Cys Glu Xaa Xaa Xaa Lys Glu Xaa Xaa Lys
    228 1               5                   10                  15
W--> 231 Xaa Xaa Asp Asn Asn Lys Xaa Glu Lys Glu Xaa Xaa Asp Xaa Xaa Asp
    232             20                  25                  30
W--> 235 Lys Xaa Cys Xaa Lys Xaa Xaa
    236             35
    239 <210> SEQ ID NO: 3
    240 <211> LENGTH: 38
    241 <212> TYPE: PRT
    242 <213> ORGANISM: Homo sapiens
    244 <220> FEATURE:
    245 <221> NAME/KEY: MISC_FEATURE
    246 <222> LOCATION: (1)..(1)
    247 <223> OTHER INFORMATION: Where the amino acid located at 1 is a hydrophobic amino
acid,
    248       including Val, Leu, Ile, Met, Pro, Phe, and Ala
    251 <220> FEATURE:
    252 <221> NAME/KEY: MISC_FEATURE
    253 <222> LOCATION: (2)..(2)
    254 <223> OTHER INFORMATION: Where the amino acid located at 2 is an uncharged polar
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    255       including Thr, Ser, Tyr, Gly, Gln, and Asn
    258 <220> FEATURE:
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    260 <222> LOCATION: (5)..(5)
    261 <223> OTHER INFORMATION: Where the amino acid located at 5 is a hydrophobic amino
acid,
    262       including Val, Leu, Ile, Met, Pro, Phe, and Ala
    265 <220> FEATURE:
    266 <221> NAME/KEY: MISC_FEATURE
    267 <222> LOCATION: (8)..(10)
    268 <223> OTHER INFORMATION: Where the amino acids located at 8-10 are hydrophobic amino
acids,
    269       including Val, Leu, Ile, Met, Pro, Phe, and Ala
    272 <220> FEATURE:
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273 <221> NAME/KEY: MISC_FEATURE
274 <222> LOCATION: (13)..(13)
275 <223> OTHER INFORMATION: Where the amino acid located at 13 is a hydrophobic amino
acid,
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RAW SEQUENCE LISTING   DATE: 11/21/2002
PATENT APPLICATION: US/09/780,438B   TIME: 10:08:29

Input Set : A:\EP.txt
Output Set: N:\CRF4\11212002\I780438B.raw

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276          including Val, Leu, Ile, Met, Pro, Phe, and Ala
279 <220> FEATURE:
280 <221> NAME/KEY: MISC_FEATURE
281 <222> LOCATION: (14)..(14)
282 <223> OTHER INFORMATION: Where the amino acid located at 14 is an uncharged polar
amino
283          acid, including Thr, Ser, Tyr, Gly, Gln, and Asn
286 <220> FEATURE:
287 <221> NAME/KEY: MISC_FEATURE
288 <222> LOCATION: (16)..(17)
289 <223> OTHER INFORMATION: Where the amino acids located at 16 and 17 are hydrophobic
amino
290          acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala
293 <220> FEATURE:
294 <221> NAME/KEY: MISC_FEATURE
295 <222> LOCATION: (22)..(22)
296 <223> OTHER INFORMATION: Where the amino acid located at 22 is an uncharged polar
amino
297          acid, including Thr, Ser, Tyr, Gly, Gln, and Asn
300 <220> FEATURE:
301 <221> NAME/KEY: MISC_FEATURE
302 <222> LOCATION: (26)..(27)
303 <223> OTHER INFORMATION: Where the amino acids located at 26 and 27 are hydrophobic
amino
304          acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala
307 <220> FEATURE:
308 <221> NAME/KEY: MISC_FEATURE
309 <222> LOCATION: (29)..(30)
310 <223> OTHER INFORMATION: Where the amino acids located at 29 and 30 are hydrophobic
amino
311          acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala
314 <220> FEATURE:
315 <221> NAME/KEY: MISC_FEATURE
316 <222> LOCATION: (33)..(33)
317 <223> OTHER INFORMATION: Where the amino acid located at 33 is a hydrophobic amino
acid,
318          including Val, Leu, Ile, Met, Pro, Phe, and Ala
321 <220> FEATURE:
322 <221> NAME/KEY: MISC_FEATURE
323 <222> LOCATION: (35)..(35)
324 <223> OTHER INFORMATION: Where the amino acid located at 35 is an uncharged polar
amino
325          acid, including Thr, Ser, Tyr, Gly, Gln, and Asn
328 <220> FEATURE:
329 <221> NAME/KEY: MISC_FEATURE
330 <222> LOCATION: (37)..(38)
331 <223> OTHER INFORMATION: Where the amino acids located at 37 and 38 are hydrophobic
amino
332          acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala
335 <400> SEQUENCE: 3
W--> 337 Xaa Xaa Cys Glu Xaa Cys Glu Xaa Xaa Xaa Lys Glu Xaa Xaa Lys Xaa
338 1                 5                  10                 15
W--> 341 Xaa Asp Asn Asn Lys Xaa Glu Lys Glu Xaa Xaa Asp Xaa Xaa Asp Lys
```

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342                 20                 25                 30
W--> 345 Xaa Cys Xaa Lys Xaa Xaa
    346           35
    349 <210> SEQ ID NO: 4
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RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 11/21/2002
PATENT APPLICATION: **US/09/780,438B**   TIME: 10:08:30

Input Set : **A:\EP.txt**
Output Set: **N:\CRF4\11212002\I780438B.raw**

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; Xaa Pos. 1,2,5,8,9,10,13,14,16,17,22,26,27,29,30,33,35,37,38
Seq#:2; Xaa Pos. 1,2,3,6,9,10,11,14,15,17,18,23,27,28,30,31,34,36,38,39
Seq#:3; Xaa Pos. 1,2,5,8,9,10,13,14,16,17,22,26,27,29,30,33,35,37,38
Seq#:4; Xaa Pos. 1,2,5,8,9,10,13,14,16,17,22,26,27,29,30,33,35,37,38

VERIFICATION SUMMARY   DATE: 11/21/2002
PATENT APPLICATION: **US/09/780,438B**   TIME: 10:08:30

Input Set : **A:\EP.txt**
Output Set: **N:\CRF4\11212002\I780438B.raw**

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L:117 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:0
L:121 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:16
L:125 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:32
L:227 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0
L:231 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:16
L:235 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:32
L:337 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:0
L:341 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:16
L:345 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:32
L:449 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:0
L:453 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:16
L:457 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:32
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